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PROCEEDINGS

OF THE

AMERICAN ACADEMY

OF

ARTS AND SCIENCES.

SELECTED FROM THE RECORDS.

VOL. VIII.

Five hundred and ninety-fifth Meeting.

May 26, 1868. — ANNUAL MEETING.

The PRESIDENT in the chair.

It was voted that this meeting be adjourned at its close to the second Tuesday in June, to receive the Council's Report and for other business.

The Treasurer's report was received and referred to the Auditing Committee.

At the close of his report the Treasurer declined to be a candidate for re-election.

Professor Lovering presented the report of the Committee of Publication. This report was accepted.

Professor Lovering presented the report of the Rumford Committee, which was accepted, and a recommendation to appropriate $1,000 from the Rumford Fund for beginning the publication of Count Rumford's works was referred to the adjourned meeting.

Professor Lovering declined to be a candidate for re-election to the Rumford Committee and to the Council, on account of a proposed absence from the country.

Professor Henck as chairman of the Library Committee presented their report, which was accepted.

The following appropriations were made for the ensuing year: —

For General Expenses, from the General Fund	$ 2,200.
" " " Rumford Fund	200.
For Publication	800.
For the Library	500.

Professor Rogers, as chairman of the committee appointed to consider and report on Chapter VII., Section 2, of the Statutes, reported that no change in the Statute was desirable. The subject of this report was referred back to the committee.

The following gentlemen were elected members of the Academy: —

Samuel H. Scudder, of Cambridge, to be a Resident Fellow in Class II., Section 3.

John L. Hayes, of Cambridge, to be a Resident Fellow in Class II., Section 1.

Professor W. J. Clark, President of the Massachusetts Agricultural College, to be a Resident Fellow in Class I., Section 3.

Andrew D. White, President of Cornell University, Ithaca, New York, to be an Associate Fellow in Class III., Section 2.

James B. Angell, President of the University of Vermont, to be an Associate Fellow in Class III., Section 4.

Hon. Lewis H. Morgan, of Albany, New York, to be an Associate Fellow in Class III., Section 2.

Professor T. C. Bluntschli, of Heidelberg, to be a Foreign Honorary Member in Class III., Section 1, in the place of the late Professor Mittermaier.

Professor Ritschl, of Bonn, to be a Foreign Honorary Member in Class III., Section 2, in the place of the late Professor Boeckh.

Professor Lassen, of Bonn, to be a Foreign Honorary Member in Class III., Section 2, in the place of the late Professor Bopp.

Henry Longueville Mansel, LL. D., to be a Foreign Honorary Member in Class III., Section 1, in the place of the late Victor Cousin.

The annual election resulted in the choice of the following officers for the ensuing year: —

Asa Gray, *President*
George T. Bigelow *Vice-President.*
William B. Rogers, *Corresponding Secretary.*
Chauncey Wright, *Recording Secretary.*
Theodore Lyman, *Treasurer.*
Frank H. Storer, *Librarian.*

Council.

Thomas Hill,
Josiah P. Cooke, of Class I.
John B. Henck,
Louis Agassiz,
Jeffries Wyman, of Class II.
Charles Pickering,
Robert C. Winthrop,
George E. Ellis, of Class III.
Andrew P. Peabody,

Rumford Committee.

James B. Francis,
Morrill Wyman,
William B. Rogers,
Joseph Winlock,
Wolcott Gibbs,
Josiah P. Cooke,
Frank H. Storer.

Committee of Finance.

Asa Gray,
Theodore Lyman, *ex officio*, by statute.
Thomas T. Bouvé, by election.

The other Standing Committees were appointed on the nomination of the President, as follows: —

Committee of Publication.

Joseph Lovering, Jeffries Wyman,
Francis J. Child.

Committee on the Library.

Francis Parkman, Charles Pickering,
John Bacon.

Committee to audit the Treasurer's Accounts.

Charles E. Ware, Charles J. Sprague.

Professor Agassiz presented the following communications: —

I. A report, dated Key West, April 24, from Mr. Henry Mitchell, to Professor B. Peirce, Supt. U. S. Coast Survey.

1. We have stretched profiles across Nicolas Channel, Santaren Channel, and Gulf Stream from Coffins' Patches to Elbow Key Light. To mention the most interesting item first: we traced a great plateau from Coffins' almost across, and in a central portion of the Straits made rich hauls of coral, living and agglomerated. Mr. Pourtales and myself are satisfied that the reef is growing out there in 200 fathoms of water.

2. We anchored boat in the axis of the Gulf Stream (as laid down on the Coast Survey chart) and quietly observed the current, — scarcely a mile per hour.

Our sounding at that point was about 550 fathoms; no variation of velocity with depth of 75 fathoms. We expected to find an increase not far below the surface, but not an inch was found. We also anchored to the westward of the middle of the Straits, and found greater velocity than in the axis, (so miscalled because warmer.)

3. Our study of Salt Key Bank and its marginal islands will interest you.

4. Nicolas and Santaren Channels are *motionless masses* of water, flat bottom, 300 to 500 fathoms, — very steep banks, say 30° to 40°. The Bahamas and Salt Key Bank are plateaux raised above the level floor of the ocean abruptly.

5. In the motionless masses of water in Nicolas and Santaren Channels (where we made four current stations at anchor in 300 and

500 fathoms) the decline of temperature from 79° (surface) to 41° (334 fathoms) is thoroughly determined. So, then, low temperatures have nothing to do with polar currents (which do not exist) or Gulf Stream.

Temperature observations are wanted in the Gulf of Providence, in this connection.

II. A report, dated Key West, May 10, from Mr. L. F. Pourtales, to the Supt. U. S. Coast Survey.

You have no doubt heard from Mr. Mitchell of the results of our cruise around the Salt Key Bank. In my line the results presented nothing of very great or novel interest, except a few dredgings on approaching the Florida reef on our return.

Since Mr. Mitchell's departure we have been engaged in running lines of soundings from the reef to deep water, combined with dredgings. At first we sounded and dredged on alternate days, but by working two lines, one on the drum and the other on the reel of the donkey engine, we find no difficulty in sounding and dredging at the same time, thus making the most of the fine weather with which we have of late been favored.

Thus far we have run four such lines and part of a fifth, and shall run two or three more. The results are very interesting and pretty accordant on the different lines. Beginning at the reef, the bottom appears to be composed of calcareous sand or mud, rather barren, until we reach near the vicinity of the 100 fathoms' line, when the descent becomes less rapid or almost ceases, indicating a rocky plateau, the material of which is a highly fossiliferous recent limestone (in fact in process of formation) in larger or smaller masses, or sometimes in ledges on which the dredge is in great danger of being held fast. This bottom is quite rich in animal life, particularly Terebratula, (my T. cubensis very abundant, and another new species a little less so), Cidaris, Comatula, and Annelids. Several species of corals occur also, nearly all different from those found on the coast of Cuba, though of the same or allied genera (Stylaster, 2 sp., Distichopora, Heliopora? and several forms of the family of Turbinolians). The Stylaster forms sometimes considerable masses. But, as I find it nearer shore, the occurrence of corals appears to be very capricious; you may get a dredge full of one species in one place, and not find a trace of them in many subsequent casts in the same neighborhood.

After we get in about 300 or 400 fathoms, which is reached by quite a rapid falling off at the end of the plateau or gently inclined plane, we find the fine sand or mud composed of Foraminifera which has so great an extension in deep water. This we make the end of our lines at present. The dredge brings up little from that bottom, but that little often of great interest. Thus I have from it a very fine Isis from 517 fathoms, and yesterday on the same bottom but less depth I obtained several specimens of a small crinoid which I have no means to determine, but which I believe to be neither a Pentacrinus nor a young Comatula. I hope to be able to dredge more over that kind of bottom on our passage home.

I have thus dwelt on the results of the last two weeks' work, because I believe them to be more important than what I did during the four preceding months, during which time I have gathered a good deal of information more or less new or useful, but which did not admit of a very connected report. I hope to make use of it in proper time.

At the suggestion of Professor Agassiz we have laid a wire strung with large conch shells from the reef at the Samboes to 10 fathoms, and are going to extend it to 20 fathoms, with the intention of examining it in a year or two and noting the corals which may have grown on the shells, and their increase of size in a given time. I had ordered tiles for the purpose before leaving Washington, but they were never sent, and at Mr. Mitchell's suggestion we took shells. I wish we had a greater variety of materials at our command, on account of what I mentioned before as the capriciousness of corals.

Five hundred and ninety-sixth Meeting.

June 9, 1868. — Adjourned Annual Meeting.

The President in the chair.

The Corresponding Secretary read letters relative to exchanges, and a letter from Mr. Theodore Lyman, declining the office of Treasurer to which he was elected at the previous meeting.

Professor Lovering called up the recommendation of the Rumford Committee which had been referred to this meeting, and, in accordance with the recommendation, $1,000 were ap-